

What is claimed is:

1. A mixture to be employed in conjunction with water for preparing a slurry that hydrates to form a high strength flooring compound, comprising:
 - 5 about 50% to about 98% by weight calcium sulfate hemihydrate, at least 25% of said calcium sulfate hemihydrate being the beta-calcined form;
 - 10 about 0.2% to about 10% by weight polycarboxylate dispersant; and
 - 15 0.05-50% by weight enhancing component.
2. The mixture of claim 1 wherein said calcium sulfate hemihydrate comprises at least 90% by weight of the beta-calcined form.
3. The mixture of claim 2 wherein said calcium sulfate hemihydrate consists essentially of the beta-calcined form.
- 20 4. The mixture of claim 2 wherein the concentration of said hemihydrate is from about 80% to about 95% by weight.
5. The mixture of claim 1 wherein said enhancing component comprises lime.
- 25 6. The mixture of claim 5 wherein the concentration of said lime in said mixture is from about 0.05% to about 10% by weight.

7. The mixture of claim 1 wherein said mixture comprises from about 0.2% to about 1% by weight polycarboxylate on a dry, aggregate-free basis.

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8. The mixture of claim 1 further comprising polysaccharide.

9. A subfloor comprising a hydrated product of a
10 pumpable slurry comprising:
about 50% to about 98% calcium sulfate hemihydrate,
said hemihydrate comprising at least 25% of the beta-calcined form;
about 0.2% to about 10% polycarboxylate dispersant;
about 0.05% to about 50% enhancing component; and
15 from about 12cc to about 40 cc water per 100 grams of a
combined mixture of the hemihydrate, the polycarboxylate and the
enhancing component on a dry solids basis, said hydrated mixture
having a compressive strength in excess of 2500 psi (175 Kg/cm²).

20 10. The subfloor of claim 9 wherein said hemihydrate
consists essentially of beta-calcined hemihydrate.

25 11. The subfloor of claim 9 wherein the concentration
of said polycarboxylate dispersant is from about 0.2% to about 1% by
weight on a dry, aggregate-free basis.

12. The subfloor of claim 9 wherein said enhancing
component comprises lime.

13. The subfloor of claim 11 wherein said water is present in an amount less than 35 cc water per 100 grams mixture on a dry, aggregate-free basis.

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14. The subfloor of claim 13 wherein said water is present in an amount less than 25 cc per 100 grams of said mixture on a dry, aggregate-free basis.

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15. The subfloor of claim 8 wherein said slurry further comprises polysaccharide.

16. A subfloor comprising a hydrated product of a pumpable slurry comprising:

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about 50% to about 98% calcium sulfate hemihydrate; about 0.2% to about 10% polycarboxylate dispersant; about 0.05% to about 50% enhancing component; and from about 15cc to about 25 cc water per 100 grams of a combined mixture of the hemihydrate, the polycarboxylate and the enhancing component on a dry solids basis, said hydrated mixture having a compressive strength in excess of 2500 psi (175 Kg/cm²).

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17. A method of preparing a subfloor comprising: obtaining ingredients comprising from about 50% to about 98% calcium sulfate hemihydrate comprising at least 25% of the beta-calcined form, from about 0.2% to about 10% polycarboxylate dispersant and from about 0.05% to about 50% of an enhancing component, all on a dry solids basis;

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separating the ingredients into wet ingredients and dry ingredients;

dry blending the dry ingredients;

measuring from about 12 cc to about 40 cc of water per

5 100 grams of the ingredients on a dry solids basis;

forming a mixture of the wet ingredients and the water;

forming a slurry from the dry ingredients and the mixture;

pouring the slurry in an area prepared for the subfloor;

and,

10 allowing the slurry to set, forming the subfloor having a compressive strength in excess of 2500 psi.

18. The method of claim 17 wherein the calcined gypsum comprises beta-calcined gypsum.

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19. The method of claim 17 wherein said calcium sulfate hemihydrate comprises at least 80% by weight of the dry mixture on an aggregate-free basis.

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20. The method of claim 17 further comprising the step of mixing an aggregate into the dry ingredients prior to forming the slurry.

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21. The method of claim 17 further comprising packaging the dry mixture after said dry blending step.

22. A subfloor comprising the hydrated product of the process of claim 16.